Calcareous Forest

Rarity Rank: S2/G2?Q
Synonyms: Calcareous Hardwood Forest, Dry Calcareous Woodland, Blackland Hardwood Forest, Upland Hardwood Forest, Circum-Neutral Forest
Ecological Systems:
CES203.379 West Gulf Coastal Plain Southern Calcareous Prairie
CES203.378 West Gulf Coastal Plain Pine-Hardwood Forest

General Description:

- Occurs on calcareous substrata in the uplands of central, western and northwest Louisiana
- Found on hills and slopes on either side of small creeks, at times in a mosaic with calcareous prairies
- Associated with four geological formations:
  - Fleming Formation (Tertiary-Miocene) in central-western LA
  - Jackson Formation (Tertiary-Eocene) in central LA
  - Cook Mountain Formation (Tertiary-Eocene) in central and western LA
  - Pleistocene Red River terraces in northwest LA
- Soils are stiff calcareous clays, not quite as alkaline as in associated calcareous prairies (surface pH ~ 6.5-7.5), with very high shrink-swell characteristics
- Trees, especially pines, are often stunted and/or crooked due to extreme physical soil properties
- Highly diverse flora in all strata (overstory, midstory, and herbaceous layer)
- Fire is thought to have played a role in community structure, tree density and ground cover composition

Plant Community Associates

Characteristic overstory tree species include:

Quercus stellata (post oak, often dominant),
Q. alba (white oak),
Q. oglethorpensis (Oglethorp oak, rare),
Carya myristiciformis (nutmeg hickory),
C. tomentosa (mockernut hickory),
P. taeda (loblolly pine),
Diospyros virginiana (persimmon),
Celtis spp. (hackberries),
Morus rubra (red mulberry),
Ulmus rubra (slippery elm),
U. alata (winged elm),
Acer rubrum (red maple)
Q. shumardii (Shumard oak),
Q. muhlenbergii (chinkapin oak),
Q. sinuata var. *sinuata* (Durand oak, rare),
C. ovata (shagbark hickory),
Pinus echinata (shortleaf pine),
Fraxinus americana (white ash),
Liquidambar styraciflua (sweetgum),
Gleditsia triancanthos (honey locust),
Fagus grandifolia (American beech),
U. americana (American elm),
U. crassifolia (rock elm),

Common midstory & understory shrub species include:

Viburnum rufidulum (rusty blackhaw),
Cercis canadensis (red bud),
Asimina triloba (paw-paw),
Vaccinium arboreum (winter huckleberry),
Rhus copallina (flame-leaf sumac),
Aesculus pavia (red buckeye),
Crataegus spp. (hawthorns),
Chionanthus virginicus (fringe-tree),
Ilex decidua (deciduous holly),
Rhamnus caroliniana (Indian cherry),
Ostrya virginica (ironwood),
Maclura pomifera (osage orange)

Common herbaceous species include:

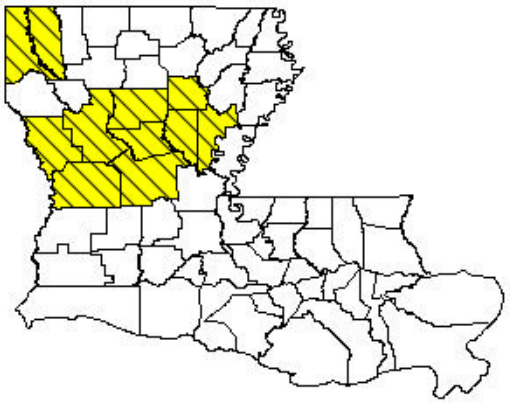
Symphyotrichum drummondii (Drummond's aster),
Cynoglossum virginianum (hound's-tongue),
Lithospermum tuberosum (tuberous puccoon),
Pedicularis canadensis (Canadian lousewort),
Elephantopus spp. (elephant-foot),
Chasmanthium spp. (spangle-grasses),
Onosmodium hispidissimum (false-gromwell),
Zizia aurea (golden alexanders),
Agrimonia spp. (agrimony),
Solidago auriculata (auricled goldenrod),
Antennaria plantaginifolia (pussy-toes),
Podophyllum peltatum (may-apple),
Phlox divaricata (phlox),
Viola spp. (violets),
Bromus spp. (brome grasses),
Sanicula canadensis (snakeroot),
Tipularia discolor (crane-fly orchid),
Galium spp. (bedstraws)

Federally-listed plant & animal species:

None

Range:

Upper and Lower West Gulf Coastal Plain ecoregions, primarily in central and west-central Louisiana with limited area remaining in northwest LA



Threats & Management Considerations:

Only 25 to 50 percent of the original presettlement extent remains today. Land use changes have brought about habitat destruction. Conversion to agriculture or pine plantations represent the greatest loss, while construction of roads, pipelines and utilities, invasive and exotic species, fire suppression, physical damage from timber harvesting, contamination by chemicals (herbicides, fertilizers), and off-road vehicle use all threaten remaining calcareous forests.

Use of appropriate management activities and developing a compatible management plan prevents destruction or degradation of this habitat type and promotes long-term maintenance of healthy calcareous forests. Such management strategies should include:

- Use of periodic prescribed fire (every 5 to 10 years); more frequent in adjacent calcareous prairies
- Maintain natural species composition by following appropriate hardwood management techniques
- Thinning targeting loblolly pine for removal and favoring shortleaf pine as "leave" trees
- No harvesting during wet periods to prevent soil damage
- Surveying for and removal of any invasive plant species (exotics or woody) with use of spot herbicides or mechanical means